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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,607	01/27/2004	Hong Xu	100101-000200US	3423
37490 7590 01/14/2008 Trellis Intellectual Property Law Group, PC 1900 EMBARCADERO ROAD SUITE 109 PALO ALTO, CA 94303			EXAMINER PARK, JEONG S	
			ART UNIT 2154	PAPER NUMBER
			NOTIFICATION DATE 01/14/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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mn

Office Action Summary	Application No. 10/766,607	Applicant(s) XU, HONG	
	Examiner Jeong S. Park	Art Unit 2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/27/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 2 and 9 are objected to because of the following informalities:

In claim 2, line 1, the phrase "a sequence number" should be corrected as --the sequence number-- for clear understanding of the claim; and

In claim 9, line 1, the phrase "sequence numbers the range" should be corrected as --the range of the sequence numbers-- for clear understanding of the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 20-22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 20 is drawn towards a computer-readable medium. The computer-readable medium defined in the specification is not in one of the statutory categories.

~~The specification provides no explicit and deliberate definition of the computer-readable medium.~~

*NJP
12/5/08* The specification defines "computer readable medium" to include propagated signals, which have been held to be non-statutory.

Claims 21 and 22, which are dependent on claim 20, do not provide any explicit and deliberate definition of the computer-readable medium to the claim and thus are rejected for the same.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-4 and 23 are rejected under 35 U.S.C. 102(e) as being anticipate by Milliken (U.S. Patent No. 6,978,384 B1).

Regarding claim 1, Milliken teaches as follows:

a method for synchronizing the transfer of sequence numbers over a digital network (methods and systems are provided for sequence number checking by comparing the sequence numbers of data packets to a sliding window, see, e.g., abstract), wherein an expected sequence number (interpreted as a range of sequence numbers in the sliding window) is compared to a received sequence number to determine if the received sequence number is acceptable, wherein a sequence number is acceptable if it is within a group of sequence numbers defined with respect to the expected sequence number (sequence numbers of data packets are compared to a sliding window, wherein the sliding window indicates a range of sequence numbers considered valid, see, e.g., col. 3, lines 50-56), the method comprising:

sending a first sequence number (a first multiple level bit map representing a first sequence number of a first packet, see, e.g., col. 2, lines 29-42) and a second sequence number (a second multiple level bit map representing a second sequence

number of a second packet received by the sequence number checker, see, e.g., col. 2, lines 29-42), wherein the first and second sequence numbers have values (used 32 bit sequence number which values between 0 and $2^{32}-1$, see, e.g., col. 7, lines 59-67) such that a subsequently sent starting sequence number is guaranteed to be accepted, and sending the starting sequence number (a method of maintaining a window of valid sequence numbers by comparing the received sequence numbers to the predefined window and moving the window range based on the comparison, see, e.g., col. 2, lines 43-50, therefore the subsequently sent next starting sequence number is inherently within the valid window range. Find more details of sliding window protocols in Computer Networks 3rd edition, Section 3.4, Tanenbaum, published by Prentice Hall PTR).

Regarding claims 2 and 3, Milliken teaches as follows:

a sequence number (414 in figure 4) is transferred with associated data (payload 406 in figure 4), wherein the sequence number and associated data include a packet (data packet 400 in figure 4)(see, e.g., col. 7, lines 54-67).

Regarding claim 4, Milliken teaches as follows:

the sequence numbers have values within a predetermined range, wherein the range includes a minimum value and a maximum value (used 32 bit sequence number which values between 0 and $2^{32}-1$, see, e.g., col. 7, lines 59-67).

Regarding claim 23, Milliken teaches as follows:

a method for synchronizing the transfer of sequence numbers over a digital network (methods and systems are provided for sequence number checking by

comparing the sequence numbers of data packets to a sliding window, see, e.g., abstract), wherein an expected sequence number (interpreted as a range of sequence numbers in the sliding window) is compared to a received sequence number to determine if the received sequence number is acceptable, wherein a sequence number is acceptable if it is within a group of sequence numbers defined with respect to the expected sequence number (sequence numbers of data packets are compared to a sliding window, wherein the sliding window indicates a range of sequence numbers considered valid, see, e.g., col. 3, lines 50-56), wherein there are k possible sequence number values (used 32 bit sequence number, therefore there are $2^{32}-1$ possible sequence number values, see, e.g., col. 7, lines 59-67), the method comprising:

 sending a series of m sequence number (window size is determined based on various factors such as end-to-end delay and transmission bandwidth, see, e.g., col. 1, line 51 to col. 2, line 25), where m is substantially less than k ($2^{32}-1$ possible sequence number)(it is well known in the art that the window size should be less than the maximum sequence number in order not to send duplicated sequence numbers without an acknowledgement from the receiver), wherein the series of m sequence numbers ensures that a subsequently sent starting sequence number is guaranteed to be accepted and sending the starting sequence number (a method of maintaining a window of valid sequence numbers by comparing the received sequence numbers to the predefined window and moving the window range based on the comparison, see, e.g., col. 2, lines 43-50, therefore the subsequently sent next starting sequence number is inherently within the valid window range. Find more details of sliding window

protocols in Computer Networks 3rd edition, Section 3.4, Tanenbaum, published by Prentice Hall PTR).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Milliken (U.S. Patent No. 6,978,384 B1).

Regarding claims 5-10, Milliken teaches as follows:

sequence number and window size are determined based on various factors such as end-to-end delay and transmission bandwidth (see, e.g., col. 1, line 51 to col. 2, line 25); and

used 32 bit sequence number which values between 0 and $2^{32}-1$ (see, e.g., col. 7, lines 59-67), wherein 0 is the minimum value and $2^{32}-1$ is the maximum value.

It would have been obvious for one of ordinary skill in the art at the time of the invention to modify as follows:

Using 16 bits sequence number instead of 32 bits;

sending the first sequence numbers values one-third or one-half of the maximum value; and

sending the second sequence number values two-thirds of the maximum or maximum.

8. Claims 11-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Milliken (U.S. Patent No. 6,978,384 B1) in view of Lu et al. (hereinafter Lu)(U.S. Pub. No. 2003/0081664 A1).

Regarding claims 11, 14, 17 and 20, Milliken teaches as follows:

two hosts (100 and 108 in figure 1) communicating over a public network wherein the hosts may be devices such as personal computers, workstations and servers (see, e.g., col. 4, lines 14-28), which inherently include at least one processor and a computer-readable medium;

methods and systems are provided for sequence number checking by comparing the sequence numbers of data packets to a sliding window (see, e.g., abstract);

sequence numbers of data packets are compared to a sliding window, wherein the sliding window indicates a range of sequence numbers considered valid (see, e.g., col. 3, lines 50-56); and

a method of maintaining a window of valid sequence numbers by comparing the received sequence numbers to the pre-defined window and moving the window range based on the comparison (see, e.g., col. 2, lines 43-50).

Therefore the subsequently sent third sequence number is inherently within the valid window range (see, more details of sliding window protocols in Computer Networks 3rd edition, Section 3.4, Tanenbaum, published by Prentice Hall PTR).

Milliken does not explicitly teach the detecting interruption of a packet even though the detecting interruption is a fundamental functionality of any sliding window protocols.

Lu teaches as follows:

a system for synchronizing sender sliding windows and received sliding windows employed in wireless packet communication is provided (see, e.g., abstract);

a sender (110 in figure 1) and a receiver (120 in figure 1) are processing packets with sequence numbers (see, e.g., page 2, paragraph [0025]);

an acknowledgement (hereinafter ACK) can be sent from the receiver to the sender indicating that packets with sequence numbers have been received correctly in order (see, e.g., page 3, paragraph [0029]); and

a lost packet (packet 3 in figure 3) can be acknowledged by ACK message (338 in figure 3) to the sender, therefore the receiver can move its receiver window so that it is now expecting packets 5 through 9 (see, e.g., page 3, paragraph [0034] and figure 3).

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Milliken to include an acknowledgement message as taught by Lu in order to efficiently control the packet flow during an interruption between a sender and a receiver.

Regarding claims 12, 13, 15, 16, 18, 19, 21 and 22, Milliken teaches similar limitations as claims 5-10 as explained above, therefore the limitations of claims are met by Milliken in view of Lu.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeong S. Park whose telephone number is 571-270-1597. The examiner can normally be reached on Monday through Friday 7:00 - 3:30

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EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JP

January 3, 2008



NATHAN FLYNN
SUPERVISORY PATENT EXAMINER